AIR FORCE

QUALIFICATION TRAINING PACKAGE (AFQTP)

for

LIQUID FUEL SYSTEMS MAINTENANCE

(3E4X2)

MODULE 17

TANK / CONFINED SPACE ENTRY

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MODULE 17

TANK/CONFINED SPACE ENTRY

Career Field Education and Training Plan (CFETP) references from 1 Apr 97 version.

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AIR FORCE QUALIFICATION TRAINING PACKAGES
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INTRODUCTION

Before starting this AFQTP, refer to and read the "Trainee/Trainer Guide" located on the AFCESA Web site **http://www.afcesa.af.mil/**

AFQTPs are mandatory and must be completed to fulfill task knowledge requirements on core and diamond tasks for upgrade training. ***It is important for the trainer and trainee to understand*** that an AFQTP ***does not*** replace hands-on training, nor will completion of an AFQTP meet the requirement for core task certification. AFQTPs will be used in conjunction with applicable technical references and hands-on training.

AFQTPs and Certification and Testing (CerTest) must be used as minimum upgrade requirements for Diamond tasks.

MANDATORY minimum upgrade requirements:

Core task:
AFQTP completion
Hands-on certification

Diamond task:
AFQTP completion
CerTest completion (80% minimum to pass)

Note: *Trainees will receive hands-on certification training for Diamond Tasks when equipment becomes available either at home station or at a TDY location.*

Put this package to use. Subject matter experts under the direction and guidance of HQ AFCESA/CEOT revised this AFQTP. If you have any recommendations for improving this document, please contact the Career Field Manager at the address below.

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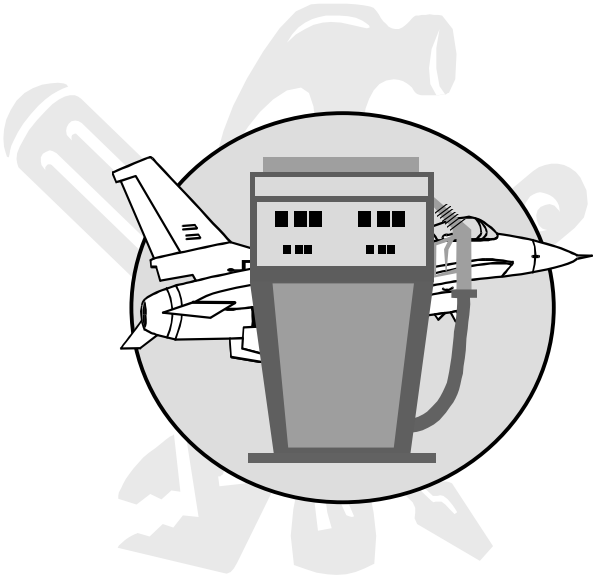


SPECIALIZED PROTECTIVE EQUIPMENT

MODULE 17 **AFQTP UNIT 4**

INSPECT (17.4.1.)

Notice. This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

INSPECT

Task Training Guide

STS Reference Number/Title:	17.4.1., Inspect
Training References:	• CDC 3E4X2 • API STD 2015 • AFM 85-16 • AFOSH STANDARD 48-1
Prerequisites:	• Possess as a minimum a 3E432 AFSC.
Equipment/Tools Required:	• Specialized protective equipment
Learning Objective:	• Trainee should know how to inspect specialized protective equipment

Samples of Behavior:	• Trainee should know how to inspect:
	  • Breathing equipment
	  • Rescue equipment

INSPECT

Background: Tank cleaning is one of the most hazardous jobs we do. To keep safe, there are many types of equipment used to minimize the hazard. These include air movers, combustible gas indicators, grounding cables, and specialized protective equipment. Before you use any of the specialized protective equipment, you must thoroughly inspect it. One thing you must keep in mind is the seriousness of this inspection. During a tank cleaning operation, you literally trust your life to this equipment, so do a good job inspecting it!

To perform the task, follow these steps:

Step 1: Inspect breathing equipment.

Inspect respirators for any holes, tears, or breaks; stretched or torn straps; damaged buckles; aged rubber; cracked lenses; and loose clamps. Tighten any loose parts, and replace any damaged parts. Discard the respirator if it cannot be repaired.

Inspect hoses and airlines for any signs of cracking, bulging or dry rot. Test the hose manually by flexing it. Inspect the connectors for damaged or missing parts.

Inspection of the respirators must be documented on an AF Form 1071. Type "C" (Air-line) respirators, the type we use for tank cleaning, require an inspection before use or annually.

Inspect the breathing air bottles for damage, corrosion, or leaks. Check the currency of the hydrostatic test date.

Step 2: Inspect rescue equipment.

Inspect body harnesses and wrist harnesses before use or periodically, not to exceed 1 year. Ensure the maximum useable time does not exceed 10 years from the date on the metal tag. If the date exceeds 10 years, or there is no tag, destroy the harness. Check harness and wrist harnesses for: deep cuts, scratches and cracks, damaged grain, open holes or tears, burnt leather, loose or missing rivets or stitching, broken, cracked or deformed D rings, snaphooks, plates and buckles, bent, broken, or missing snaphook keeper latch. Any one of these defects is cause for rejection of the harness. To prevent reuse, destroy unserviceable harnesses by cutting the webbing or straps.

Life- lines have a 5-year service life from the date of first use. They must be inspected and identified or marked before being used and checked for the following defects, any of which is basis for rejection: any cuts, chafes, or nicks, bulged strands, knots in individual strands, improperly attached fittings, abnormal weakness detected visually, discoloration or rotting. To prevent reuse, destroy unserviceable life-line by cutting into small pieces.

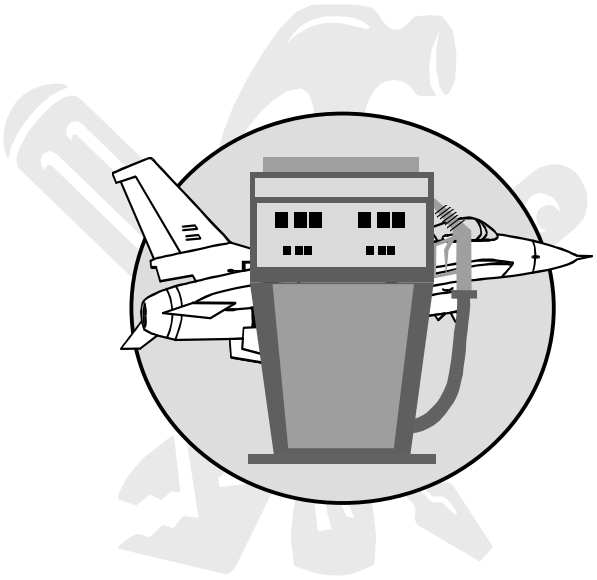
Review Questions
for
Inspect

Question	Answer
1. A damaged respirator part can be repaired with epoxy.	a. True b. False
2. The monthly inspection for type "C" respirators is documented on _____.	a. AF Form 988. b. AF Form 332. c. AF Form 1071. d. AF Form 172.
3. Breathing air bottles must be inspected for _____.	a. Corrosion and damage. b. Damage and current hydrostatic test date. c. Corrosion and current hydrostatic test date. d. Corrosion, damage, and current hydrostatic test date.
4. ____ has (have) a five year service life from the date of first use.	a. Wrist harnesses b. Breathing air bottles c. Life-lines d. Acid resistant gauntlet gloves
5. If a harness has ____ defect(s), or is older than 10 years, it must be destroyed.	a. 1 b. 2 c. 3 d. 4

INSPECT

Performance Checklist		
Step	**Yes**	**No**
1. Inspect breathing equipment: a. Did trainee inspect respirators? b. Did trainee inspect hoses and airlines? c. Did trainee document respirator inspection? d. Did trainee inspect the breathing air bottles?		
2. Inspect rescue equipment: a. Did trainee inspect body harnesses and wrist harnesses? b. Did trainee inspect life- lines?		

FEEDBACK: Trainer should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer.



SPECIALIZED PROTECTIVE EQUIPMENT

MODULE 17 **AFQTP UNIT 4**

USE (17.4.2.)

Notice. This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

USE

Task Training Guide

STS Reference Number/Title:	17.4.2., Use
Training References:	• CDC 3E4X2 • AFOSH STD 48-1 • AFOSH STD 91-31
Prerequisites:	• Possess as a minimum a 3E432 AFSC
Equipment/Tools Required:	• Specialized protective equipment
Learning Objective:	• Trainee should identify relationship of basic facts and state general principles about using specialized protective equipment

Samples of Behavior:	• Trainee should:
	  • Understand who administers the respiratory protection program
	  • Understand limitations of respirators
	  • Understand fit-testing and training
	  • Know how to use rescue equipment

USE

Background: If inspection reveals no defects, then the specialized protective equipment is ready for use. This specialized protective equipment must be used properly, and in accordance with the appropriate guidance.

The Bioenvironmental Engineering Service (BES) at the base level runs the Respiratory Protection Program. Among other things, the BES is responsible for the respirator selection criteria, training and fit-testing procedures. Before you can use any respirator, the BES must approve it and train you in its use.

The only types of respirators that can be used for tank cleaning are Type "C", and must be approved by the National Institute for Occupational Safety and Health (NIOSH) or Mine Safety and Health Administration (MSHA). Like any piece of equipment, respirators have their limits. Facial hair and extreme temperatures can adversely effect the performance of respirators. Contact lenses and spectacles with straps or temple bars that pass through the sealing surface of the mask may not be worn.

NOTE:
Individuals with facial hair that interferes with the face piece - to - face seal can not be respirator certified.

The BES will conduct a fit-test initially, and then every 12 months. The fit-test is valid for this period unless the worker experiences difficulty with positive or negative pressure tests; changes weight by more than 20 pounds; receives extensive dental work, facial cosmetic surgery, scarring, or disfigurement. The BES will provide initial training to respirator wearers. This training shall be documented on the AF Forms 55 and 2767. This training will include instruction in the nature of the hazard, and an appraisal of what may happen if the respirator is not used. Also included in this training is explanation of how to maintain, clean and store the respirator; instructions on how to inspect, put on, check the fit, and properly wear the respirator.

Self-rescue is the best method of rescue, for obvious reasons! Any entrant must be aware of their situation, and evacuate if necessary. The entrant must also leave the area any time they are told to do so. The manhole observer / attendant may know something you don't, so if he tells you to get out, get out! The entry supervisor will ensure that all rescue equipment is properly located and set up, and ensure entrants are wearing their harnesses. If the safety person needs to enter the tank to perform a rescue, first they will assess the victim's condition. If the victim's air hose is tangled, the safety person will turn on the victim's escape bottle, and then disconnect their air supply line. Then they will pull the victim to the hoist and attach the hoist to the victim's harness. At this time, the manhole observer / attendant will operate the hoist. If the tank is an aboveground tank with manholes at ground level, the safety person will attach a lifeline to the victim's harness and the personnel outside the tank will pull the victim out, sliding them across the floor. The safety person will help guide the victim so they will not become tangled up or sustain further injuries.

To perform the task, follow these steps:

Step 1: Check bottle security.

Ensure the bottles are secure. Ensure the bottles have air in them. Make sure all connections are tight. Ensure the regulator has been installed correctly. Ensure the valves work properly.

Step 2: Check air-hoses.

Before making air connections, ensure disconnects are free from obstructions. Ensure airline connections are secure. Ensure airlines are not tangled or knotted. Ensure the area that hoses will travel over is free of sharp objects. Make sure airline is clear by establishing an air flow.

Step 3: Check respirator.

Before wearing respirator, connect to airline and ensure you are getting good airflow. Ensure the emergency bottle is full. Make sure that you have a good seal with your mask before entering the tank.

Step 4: Check lifelines and harness

Ensure harness is tight and secure. Ensure the lifeline connections are compatible with the harness.

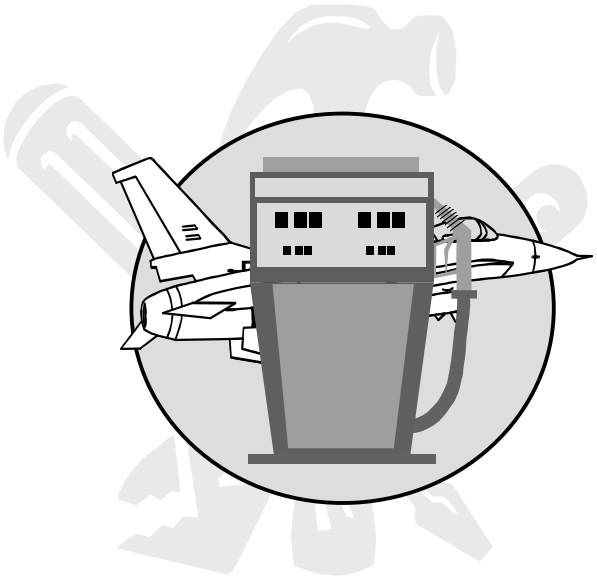
Review Questions
for
Use

Question	Answer
1. The LFM NCOIC runs the respiratory protection program.	a. True b. False
2. The only types of respirators that can be used for tank cleaning are _____.	a. Approved by NIOSH or MSHA b. Type "C" c. Explosion proof d. Both a. and b.
3. Who conducts initial respirator fit testing?	a. Bioenvironmental Engineering Service b. Entry supervisor c. LFM NCOIC d. Fire department
4. What is the best method of rescue?	a. Calling the fire department b. Self-rescue c. Manually operated hoist d. Life-line

USE

Performance Checklist		
Step	**Yes**	**No**
1. Did trainee check the air bottle system?		
2. Did trainee check airlines?		
3. Did trainee check respirator?		
4. Did trainee check harness and lifeline?		

FEEDBACK: Trainer should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer.



SPECIALIZED PROTECTIVE EQUIPMENT

MODULE 17 **AFQTP UNIT 4**

MAINTAIN (17.4.3.)

Notice. This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

MAINTAIN

Task Training Guide

STS Reference Number/Title:	17.4.3., Maintain
Training References:	• AFOSH STD 48-1 • AFM 85-16
Prerequisites:	• Possess as a minimum a 3E432 AFSC
Equipment/Tools Required:	• Specialized protective equipment
Learning Objective:	• Trainee should identify relationship of basic facts and state general principles about maintaining specialized equipment

Samples of Behavior:	• Trainee should:
	  • Demonstrate how to clean a respirator
	  • Demonstrate how to clean other breathing equipment
	  • Understand requirements for hydrostatic testing of breathing air bottles

MAINTAIN

Background: To continue to offer the proper protection, your personal protective equipment must be maintained. This includes cleaning the respirator and associated breathing equipment. Also, the rescue equipment must be maintained.

To perform the task, follow these steps:

Step 1: Clean the respirator.

To clean the respirator, you must partially disassemble it. Remove the head straps, and if the type you are using has a removable nose cup, remove it. Further disassembly is not authorized. Then place the respirator in a solution of commercially available cleaner / disinfectant. Use a soft brush to remove any dirt and grime. Rinse in warm clean water. Be sure that all the cleaner disinfectant solution is rinsed off. Air-dry the respirators in a clean area. When everything is dry, carefully inspect all the parts as you are reassembling the respirator. Place the respirator in a sealed plastic bag for storage when you are done. Update the AF Form 1071 after cleaning and inspecting the respirator.

Step 2: Clean the other breathing equipment.

The other breathing equipment includes the hoses, breathing air bottles, and regulators. Special care must be taken with the hoses. When you are done using the hoses, roll each hose up separately, and connect its ends together. This will prevent any dirt or moisture from getting into the hose. Then simply wash the hoses with soapy water and a soft brush. After you make sure the valves are closed on the breathing air bottles, wash them with soapy water and a brush. You should be careful with the regulators, you don't want any water to get inside them. It is best to wipe them off with a damp rag.

Step 3: Check the hydrostatic test date on the bottles.

The breathing air bottles will have a date stamped on them from the hydrostatic test. Ensure that it is no more than 5 years since the last hydrostatic test. If it is more than 5 years, the bottle must be removed from service until it can be tested again and re-certified.

Step 4: Check harness and lifelines.

Ensure harnesses and lifelines are cleaned and stored properly.

NOTE:
After cleaning equipment it should be inspected following the guidelines in AFQTP 17.4.1., Inspect.

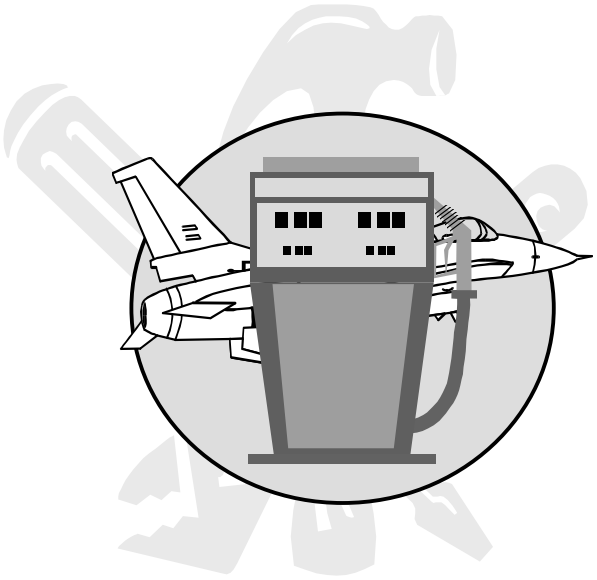
Review Questions
for
Maintain

Question	Answer
1. To clean a respirator, use _____.	a. A cleaner disinfectant and a soft brush. b. Scouring powder and a sponge. c. Window cleaner and a soft brush. d. Boiling water and a sponge.
2. Why should the ends of a hose be connected together?	a. To keep it from unrolling. b. To make it easier to carry. c. To keep dirt and moisture out. d. To keep pressure in the line.
3. If the hydrostatic test date on the breathing air bottle is more than 5 years old, _____.	a. Remove all air from the bottle and discard. b. Remove the bottle from service until it gets re-certified. c. Use it anyway, just get it re-certified sometime. d. Stamp new dates on the bottle.

MAINTAIN

Performance Checklist		
Step	**Yes**	**No**
1. Did trainee clean respirator and update AF 1071?		
2. Did trainee clean other breathing equipment?		
3. Did trainee check hydrostatic test date on breathing air bottles?		
4. Did trainee clean harness and lifeline?		

FEEDBACK: Trainer should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer.



TANK/CONFINED SPACE ENTRY

MODULE 17 **AFQTP UNIT 5**

PERFORM TANK INSPECTION (17.5.)

Notice. This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

PERFORM TANK INSPECTION

Task Training Guide

STS Reference Number/Title:	17.5., Perform Tank Inspection
Training References:	• API 653 • AFM 85-16
Prerequisites:	• Possess as a minimum a 3E432 AFSC.
Equipment/Tools Required:	• All tank cleaning /confined space equipment • All rescue equipment • Explosion-proof flashlight
Learning Objective:	• Trainee should understand the relationship of basic facts and state general principles of performing tank inspection

Samples of Behavior:	• Trainee should understand:
	  • Pre-cleaning inspection
	  • Post-cleaning inspection

Notes:	
• This AFQTP is based on the assumption that all confined space and tank entry procedures have already been performed. This AFQTP only addresses the inspection portion of tank cleaning. For further guidance on the tank entry procedures, refer to AFM 85-16, and to your Master Entry Plan. This AFQTP will cover above and below ground tanks.	

PERFORM TANK INSPECTION

Background: The first and last person in the fuel tank is the Tank Cleaning Supervisor. Upon initial entry, the tank-cleaning supervisor assesses the condition of the tank, and what needs to be done to clean it. After the tank is cleaned, the tank-cleaning supervisor enters again to perform a visual inspection of the condition of the tank. The condition is then annotated on an AF Form 172 Tank Inspection Summary.

To perform the task, follow these steps:

Step 1: Inspection prior to tank cleaning.

Using all proper procedures for tank entry, enter the fuel tank. After allowing a few minutes for your eyes to adjust to the darkness, carefully walk around the tank. Look for hazards such as, floating roof legs, pantographic hangers, and slippery floors. Tie up any liquid level shut-off float assemblies. Identify what methods will be used for cleaning such as; squeegee, broom, or non-sparking shovel. Make note of any areas that seem to need special attention. This may include sumps and "bird baths". Exit the tank and brief the crew on the safety hazards identified, methods of cleaning to use, and areas requiring extra attention.

Step 2: Inspection after tank cleaning.

After the crew is done cleaning the tank, enter the tank. Look for any rags, tools or debris that may have been left behind. Ensure the tank is clean. If necessary, have the workers enter and clean any spots that are not clean enough. Now you may perform a visual inspection of the condition of the tank. Inspect the welds for cracks and corrosion. Check mechanical components for wear and damage. If the tank is epoxy coated, check for chips or blisters in the coating. Check the fabric roof seal (if equipped) for serviceability. Be very thorough, and look at everything. Untie the float assemblies that were tied up.

Step 3: Fill out AF Form 172.

The AF Form 172 is used to record all tank maintenance, including cleaning and inspection. The AF Form 172 will be forwarded to your major command fuels engineer, maintained in the facility folder, and in the liquid fuels maintenance office. It will include information on the location, type of tank, and work order number. Also included are several blocks for annotating the condition of the tank, the amount of sludge in the tank, the degree and location of rusting, and condition of the tank coating.

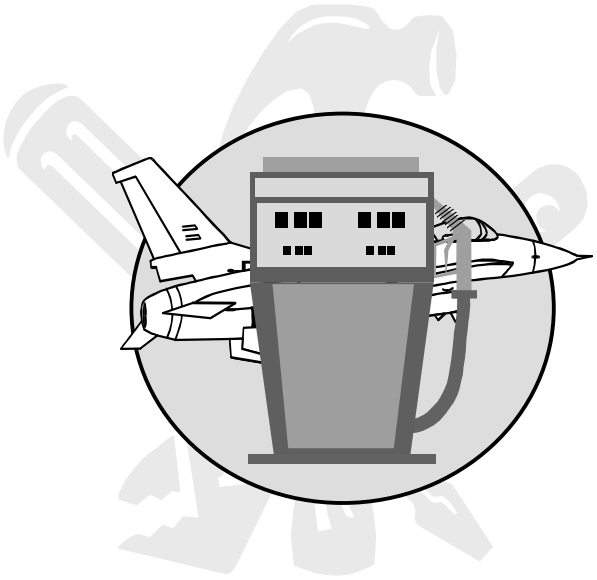
Review Questions
for
Perform Tank Inspection

Question	Answer
1. The first and last person in the tank _____.	a. Is the entrant. b. Cleans it. c. Dries the sump. d. Is the Tank Cleaning Supervisor.
2. During the first inspection, look for _____.	a. Rags, tools or debris. b. Epoxy coating. c. The roof seal. d. Hazards.
3. After the tank cleaning, _____.	a. You inspect the tank for cleanliness. b. You inspect the condition of the tank. c. You sweep the tank out. d. Both a. and b.
4. The AF Form 172 is _____.	a. Used to get permission to enter the tank. b. Used to record condition of tank. c. Optional. d. Obsolete, use the AF Form 332.

PERFORM TANK INSPECTION

Performance Checklist		
Step	**Yes**	**No**
1. Did trainee perform inspection prior to tank cleaning?		
2. Did trainee perform inspection after tank cleaning?		
3. Did trainee fill out AF Form 172?		

FEEDBACK: Trainer should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer.



TANK/CONFINED SPACE ENTRY

MODULE 17 **AFQTP UNIT 6**

PERFORM TANK CLEANING (17.6.)

Notice. This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

PERFORM TANK CLEANING

Task Training Guide

STS Reference Number/Title:	17.6., Perform Tank Cleaning
Training References:	• AFM 85-16 • API 2015
Prerequisites:	• Possess as a minimum a 3E432 AFSC.
Equipment/Tools Required:	• Squeegee • Mop • Rags
Learning Objective:	• Trainee should identify relationship of basic facts and state general principles about performing tank cleaning

Samples of Behavior:	• Trainee should:
	  • Understand methods of tank cleaning
	  • Understand sludge / waste disposal

Notes:	
• This AFQTP is based on the assumption that all initial confined space and tank entry procedures have already been performed. This AFQTP only addresses tank cleaning. For further guidance on the tank entry procedures, refer to AFM 85-16, and to your Master Entry Plan. This AFQTP will cover above and below ground tanks.	

PERFORM TANK CLEANING

Background: After the tank has been inspected, it is time to clean it. There are many different ways to clean a tank. You can use a squeegee, a mop, rags, air operated vacum, and spray water. Most likely, you will use some combination of the methods above. After the tank has been cleaned, you will need to know how to dispose of the waste.

To perform the task, follow these steps:

Step 1: Clean the Tank.

The tank-cleaning supervisor will direct the worker on which cleaning method to use. Just keep in mind that any tools used must be non-sparking. If any brooms or brushes are used, they must not have nylon bristles. In a tank with a flat bottom, the first thing you will probably want to do is use a squeegee. With the squeegee, push any liquid and sludge to the sump. There will be a diaphragm pump, outside the tank, connected to the stripping line. This will draw the waste out of the sump. Start at a point away from the sump, and work towards it. Think of the tank floor as being divided into different sections. This way you will finish one area before you go on to the next. Once the majority of liquid is gone, you will need mops and rags to get any areas that were missed. Common areas that are hard to get with the squeegee are around the legs of the floating pan, under the inlet and issue nozzles, and under the stripping line. Water can be used very effectively. The drawback with water is that using water generates more waste. Using a pressure washer works very well, and uses a fraction of the water that regular hose uses. A pressure washer uses about 3-4 gallons per minute, and up to 2000 psi. The waste may also be swept into piles and shoveled into buckets. This is usually the best way to remove waste from tanks that have no sump or when the sludge is extremely thick.

Step 2: Dispose of sludge.

Sludge that is removed from fuel tanks may contain Tetraethyl lead (TEL). Treat all sludge as if it does contain TEL. The sludge must be disposed of properly. To ensure compliance with all environmental laws, coordinate the disposal of sludge with the Environmental flight.

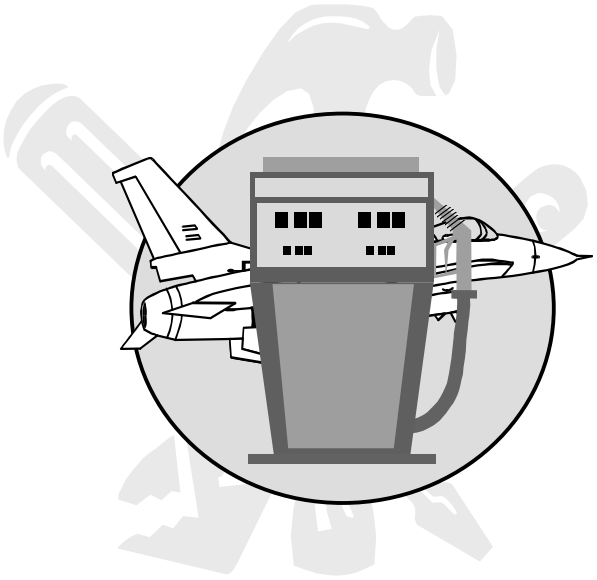
Review Questions
for
Perform Tank Cleaning

Question	Answer
1. Any tools used during tank cleaning _____.	a. Must be cleaned. b. Must be approved by LFM NCOIC. c. Must be disposed of properly. d. Must be non-sparking.
2. Water can be used very effectively to clean a tank. The drawback to using water _____.	a. Is that it may react with tetraethyl lead. b. Water may contaminate breathing air. c. Using water generates more waste. d. Using water is illegal.
3. Treat all sludge as if it contains Tetraethyl Lead.	a. True b. False
4. To dispose of sludge _____.	a. Pour it into an oil / water separator. b. Put it into drums and landfill it. c. Turn it into supply. d. Coordinate with the environmental flight.

PERFORM TANK CLEANING

Performance Checklist		
Step	**Yes**	**No**
1. Did trainee clean the tank?		
2. Did trainee coordinate the disposal of sludge / waste?		

FEEDBACK: Trainer should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer.



TANK/CONFINED SPACE ENTRY

MODULE 17 **AFQTP UNIT 9**

RETURN TANK TO SERVICE (17.9.)

Notice. This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

RETURN TANK TO SERVICE

Task Training Guide

STS Reference Number/Title:	17.9., Return tank to service
Training References:	• API STD 2015 • AFM 85-16
Prerequisites:	• Possess as a minimum a 3E432 AFSC.
Equipment/Tools Required:	• General tool kit
Learning Objective:	• Trainee should identify relationship of basic facts and state general principles about returning a tank to service
Samples of Behavior:	• Trainee should identify steps and procedures for returning tank to service
Notes:	
• This AFQTP is based on the assumption that all initial confined space and tank entry procedures have already been performed. This AFQTP only addresses returning a clean tank to service. For further guidance on the tank entry procedures, refer to AFM 85-16, and to your Master Entry Plan. This AFQTP will cover above and below ground tanks.	

RETURN TANK TO SERVICE

Background: Prior to cleaning and inspecting the fuel tank, it was emptied, isolated, opened up and vapor freed. Before the tank can be put back in service, there are many things that must be taken care of. The tank must be restored to its original condition, before they can be filled.

To perform the task, follow these steps:

Step 1: Perform tank maintenance.

Ensure all discrepancies identified during the tank inspection have been repaired.

Step 2: Close tank.

Ensure all tools and parts have been removed from the tank. Replace all manholes, valves and piping that were removed. Remove all spectacle flanges. Reinstall any other components that were removed. You must be sure of the integrity of the tank before you start to fill it. If something is accidentally left open, there will be a major fuel spill, resulting in property damage, environmental impact, and worse of all the potential for injury or death.

Step 3: Fill the tank.

Fill the tank at 3 feet per second until the fill line is well submerged to avoid turbulence and the generation of static. If the tank has a floating roof or pan, maintain the 3 feet per second until the roof or pan is afloat. Do not fill when lightning storms are within 5 miles. Personnel should not go on top of the floating roof or pan for at least 30 minutes after filling operations have stopped. Check the tank and lines for leaks, especially manholes and piping that were open.

Step 4: Restore area to original condition.

Pick up all tools, and equipment. Confirm that tank and dike area housekeeping is good. At the completion of the work, the supervisor must make sure the tank is stenciled adjacent to the manhole opening with the following information: date of last cleaning or inspection, if it was done in-house or by contract, and the name of the tank-cleaning supervisor. Once the tank is full, and there are no leaks, the tank can be turned over to the using agency.

Review Questions
for
Return Tank to Service

Question	Answer
1. After the tank is filled, remove spectacle flanges.	a. True b. False
2. Tank must be filled slowly _____.	a. To avoid turbulence. b. To prevent leaks. c. To avoid generation of static. d. Both a. and c.
3. After floating the roof, personnel should not go on the floating roof _____.	a. For 20 minutes. b. For 30 minutes. c. For 18 hours. d. Ever.
4. At the completion of work, the tank-cleaning supervisor must _____.	a. Stencil the tank. b. Remove the spectacle flanges. c. Inspect the floating roof (if equipped). d. Check the manholes for leaks.

RETURN TANK TO SERVICE

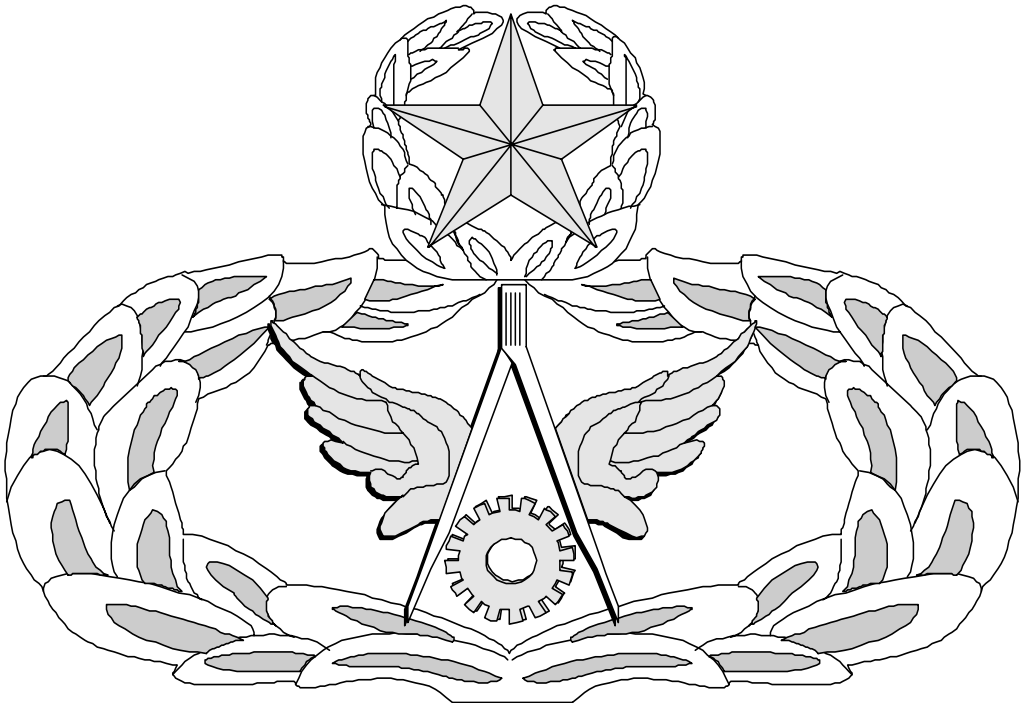
Performance Checklist		
Step	**Yes**	**No**
1. Did trainee close the tank?		
2. Did trainee fill the tank?		
3. Did trainee restore the area to original condition and fill out AF 172?		

FEEDBACK: Trainer should provide both positive and/or negative feedback to the trainee immediately after the task is performed. This will ensure the issue is still fresh in the mind of both the trainee and trainer.

Air Force Civil Engineer

QUALIFICATION TRAINING PACKAGE (QTP)

REVIEW ANSWER KEY



For

LIQUID FUEL SYSTEMS MAINTENANCE

(3E4X2)

MODULE 17

TANK / CONFINED SPACE ENTRY

Notice. This AFQTP is *NOT* intended to replace the applicable technical references nor is it intended to replace hands-on training. It is to be used in conjunction with these for training purposes only.

INSPECT
(3E4X2-17.4.1.)

Question	Answer
1. A damaged respirator part can be repaired with epoxy.	b. False
2. The monthly inspection for type "C" respirators is documented on _____.	c. AF Form 1071
3. Breathing air bottles must be inspected for	d. Corrosion, damage, and current hydrostatic test date
4. ____ has(have) a five year service life from the date of first use	c. Life-lines
5. If a harness has ____ defect(s), or is older than 10 years, it must be destroyed	a. 1

USE

(3E4X2-17.4.2.)

Question	Answer
1. The LFM NCOIC runs the respiratory protection program	b. False
2. The only types of respirators that can be used for tank cleaning are _____.	d. Both a. and b.
3. Who conducts initial respirator fit testing?	a. Bioenvironmental Engineering Service
4. What is the best method of rescue?	b. Self-rescue

MAINTAIN
(3E4X2-17.4.3.)

Question	Answer
1. To clean a respirator, use _____.	a. A cleaner disinfectant and a soft brush.
2. Why should the ends of a hose be connected together?	c. To keep dirt and moisture out
3. If the hydrostatic test date on the breathing air bottles is more than 5 years old, _____.	b. aRemove the bottle from service until it gets re-certified.

PERFORM TANK INSPECTION

(3E452-17.5.)

Question	Answer
1. The first and last person in the tank _____.	d. Is the tank cleaning supervisor
2. During the first inspection, look for _____.	d. Hazards
3. After the tank cleaning, _____.	d. Both a. and b.
4. The AF Form 172 is _____.	Used to record condition of tank

PERFORM TANK CLEANING

(3E452-17.6.)

Question	Answer
1. Any tools used during tank cleaning _____.	d. Must be non-sparking.
2. Water can be used very effectively to clean a tank. The drawback to using water _____.	c. Using water generates more waste.
3. Treat all sludge as if it contains Tetraethyl lead.	a. True
4. To dispose of sludge, _____.	d. Coordinate with the environmental flight.

RETURN TANK TO SERVICE

(3E452-17.9.)

Question	Answer
1. After the tank is filled, remove spectacle flanges.	b. False
2. Tank must be filled slowly _____.	d. To avoid generation of staticBoth a. and c.
3. Personnel should not go on the floating roof _____.	c. For 1 B. For 30 minutes.
4. At the completion of work, the tank-cleaning supervisor must _____.	a. Stencil the tank.